# Structures
## Free-standing Structures

Y1

In this unit, we will design, make and evaluate a strong chair for Baby Bear.

## Knowing More Remembering More:

Remembering previous learning

*In Reception, children will have experienced:*

- *using a range of small tools, including scissors, paintbrushes and cutlery.*
- *safely using and exploring a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.*
- *sharing their creations, explaining the processes they have used.*

## Skills

I will be able to:

Design:

| | |
|---|---|
| 1.1 | Use pictures and words to convey what I want to design/make. |
| 1.3 | Model ideas with construction kits |
| 1.5 | Talk about how I will make their product |

Make:

| | |
|---|---|
| 1.6 | Select materials from a limited range that will meet the design criteria. |
| 1.7 | Explain which materials I am using and why. |
| 1.8 | Select and name the tools needed for making. |

Evaluate:

| | |
|---|---|
| 1.11 | Explore existing products and investigate how they have been made. |
| 1.13 | Talk about my design and what they I are making |
| 1.14 | Say how well my product meets the design criteria |

## Vocabulary

### Technical vocabulary

Structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, circle, triangle, square, rectangle, cuboid, cube, cylinder, metal, wood, plastic

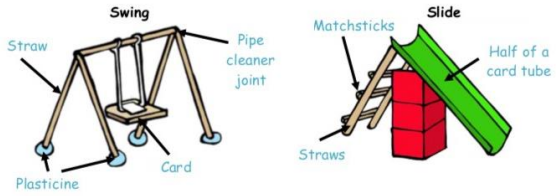
### Process vocabulary

Cut, fold, join, fix, design, make, evaluate, user, purpose, ideas, design criteria, product, function.

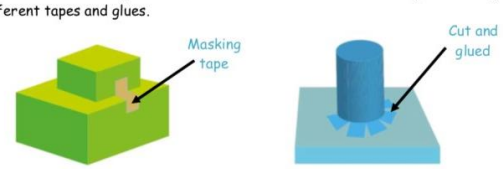
Names of tools, equipment and materials used.

## Techniques:

**Techniques for assembling freestanding structures**

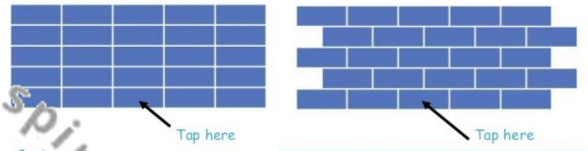


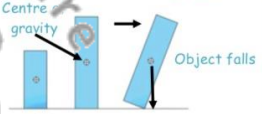

Show children how to join sheet materials and reclaimed boxes together using different tapes and glues.




**Technical knowledge and understanding**

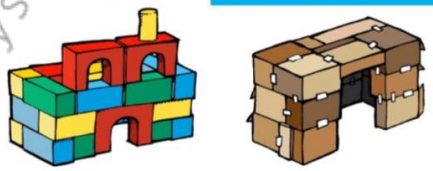
Build walls with these different patterns. Tap away the centre brick in the bottom row of each wall in turn. What happens? Which wall is the strongest?




As a freestanding structure becomes taller its centre of gravity rises. Stability in a structure can generally be increased by making the base wider, making the base heavier or adding buttresses.

Ask the children to build and explore a variety of freestanding structures through focused tasks. Use a range of construction kits.



## Inspiring Individuals

Renzo Piano

Dame Zaha Hadid

## Knowing More Remembering More:

Knowing more in Y1

**What is a structure?** A structure is a 3D shape made from different materials and parts. They are made to be strong, stable and sturdy.

**What is a free-standing structure?** A free-standing structure is a structure that stands up on its own without being attached to anything else.

**What is stability?** Stability is the extent to which a structure will fall over if a force is applied.

**What is a buttress?** A buttress is a structure added to a wall, tower or framework to make it more stable or stronger.

**What is brick bonding?** Brick bonding is when bricks are arranged in a wall to improve the performance of the structure or improve its appearance.

**What is a prototype?** A prototype is a model which allows children to try out ideas